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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/786,275	03/15/2001	Christophe Boulanger	203495US2PCT	7026

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EXAMINER	
WANG, TED M	

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 03/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/786,275	BOULANGER ET AL.	
	Examiner	Art Unit	
	Ted M Wang	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 5* is/are rejected.

7)☒ Claim(s) *4* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 September 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, filed on 09/29/2004, with respect to the rejection of claim(s) 1-5 under 35 USC § 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn.

Claim Objections

2. Claim 1 is objected to because of the following informalities:

- A claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation, 37 CFR1.75(i).

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-3, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art of the instant application in view of "On the implementation and performance of single and double differential detection schemes, *Simon et al.;* Communications, IEEE Transactions on, Volume: 40, Issue: 2 , Feb. 1992 Pages:278 - 291.

- With regard claim 1, the admitted prior art of the instant application teaches a receiver with a method for receiving a CDMA signal, comprising an operation of correlation with appropriate pseudo-random sequences (Fig.1 element 10 (I) and 10 (Q), and page 3 lines 4-18), an operation of synchronization (page 4 lines 18-31) for locating data in the correlation signal obtained (Fig.1 elements 10(I) and 10(Q)) and a single delayed multiplication of the sampled correlation signal (Fig.1 elements 12(I) and 12(Q) and 14) by performing a first delayed multiplication consisting in multiplying a sample of the correlation signal by the conjugate preceding sample (Fig.1 elements 12(I) and 12(Q) and 14).

  The admitted prior art of the instant application teaches all of the subject matter as described above except for specifically teaching that the synchronization operation implements double delayed multiplication of the sampled correlation signal by performing a second delayed multiplication consisting in multiplying a sample of the signal thus obtained by the conjugate preceding sample of said signal obtained. However, Simon et al. teaches a double differential detection scheme that implements double delayed multiplication (Fig.14 delay 2τ and delay τ and multiplications) of the sampled correlation signal by performing a second delayed multiplication (Fig.14 delay 2τ and delay τ and multiplications) consisting in multiplying a sample of the signal thus obtained by the conjugate preceding sample of said signal obtained (Fig.14 delay 2τ and delay τ and multiplications) and page 289, section A. Further Enhancements, lines 1-22).

  It is desirable to the synchronization operation implements double delayed multiplication of the sampled correlation signal by performing a second delayed

multiplication consisting in multiplying a sample of the signal thus obtained by the conjugate preceding sample of said signal obtained in order to improve the system error probability performance (page 289, section A. Further Enhancements, lines 1-15). Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include the concept of the delayed double multiplication as taught by Simon et al. in which, the synchronization operation implements double delayed multiplication of the sampled correlation signal by performing a second delayed multiplication consisting in multiplying a sample of the signal thus obtained by the conjugate preceding sample of said signal obtained, into the admitted prior art of the instant application's receiver, i.e. applies the single delayed multiplication twice, in series, as taught by Simon et al., so as to improve the system error probability performance.

- In regard claim 2, the admitted prior art of the instant application further teaches the limitation that a maximum of the signal obtained through double delayed multiplication is searched for (Fig.2 element 20), and a synchronization signal corresponding to maximum is delivered (Fig.2 element 20 and page 4 line 24 – page 5 line 16).
- In regard claim 3, the admitted prior art of the instant application further teaches the limitation that an average is calculated of two successive maximum values obtained before the synchronization signal is generated (Fig.2 elements 20 and 22, and page 4 line 24 – page 5 line 22).

- In regard claim 5, which is a receiver claim related to claim 1, all limitation is contained in claim 1. The explanation of all the limitation is already addressed in the above paragraph.

Allowable Subject Matter

5. Claims 4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. Reference(s) US 6,349,109 and US 5,799,035 are cited because they are put pertinent to the CDMA receiver with double delayed multiplication. However, none of references teach detailed connection as recited in claim.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted M. Wang whose telephone number is 571-272-3053. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ted M Wang
Examiner
Art Unit 2634

Ted M. Wang

SHUWANG LIU
PRIMARY EXAMINER